FIG.1

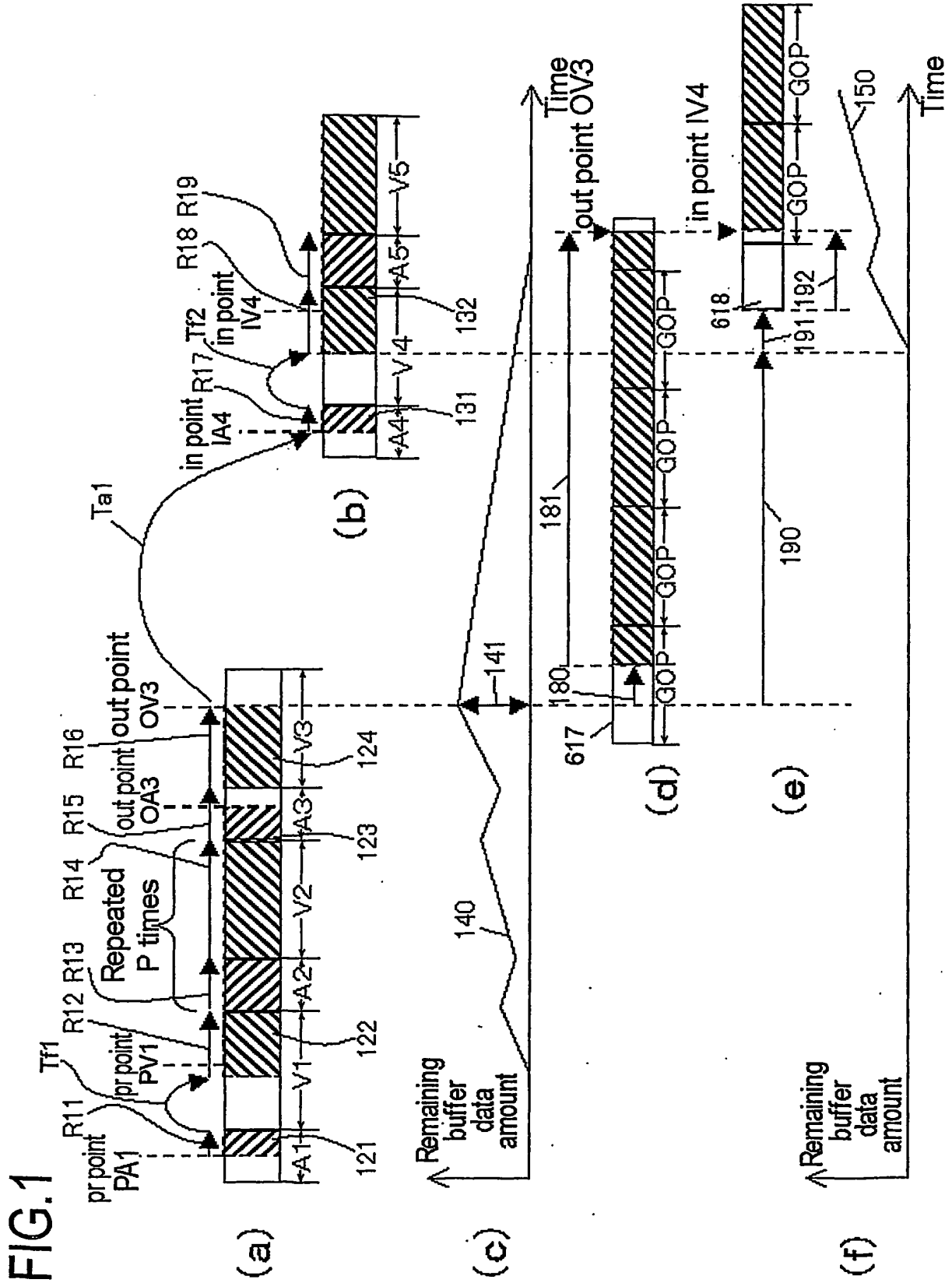

(a)
(b)
(c)
(d)
(e)
(f)
pr point PA1
R11
Tf1
pr point PV1
R12
R13
Repeated P times
R14
R15
out point OA3
R16
out point OV3
Ta1
in point IA4
R17
Tf2
in point IV4
R18
R19
A1
V1
A2
V2
A3
V3
A4
V4
A5
V5
121
122
123
124
131
132
Remaining buffer data amount
140
141
Time
180
181
617
GOP
out point OV3
in point IV4
190
191
192
618
150

FIG.2

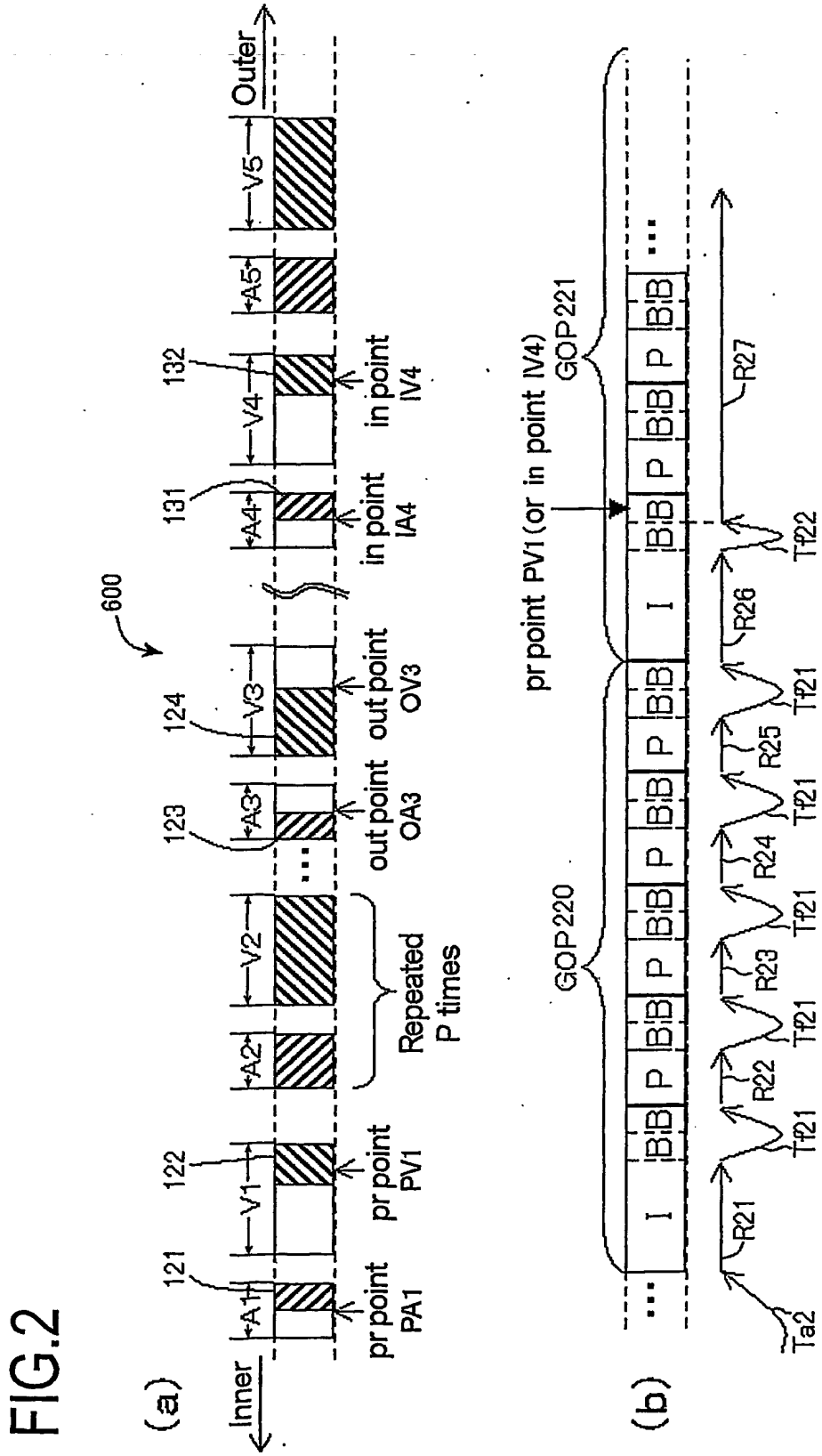

(a)
Inner
Outer
600
121
122
123
124
131
132
A1
V1
A2
V2
A3
V3
A4
V4
A5
V5
pr point PA1
pr point PV1
out point OA3
out point OV3
in point IA4
in point IV4
Repeated P times
(b)
pr point PV1 (or in point IV4)
GOP220
GOP221
I
B
P
R21
R22
R23
R24
R25
R26
R27
Ta2
Tf21
Tf22

FIG.3

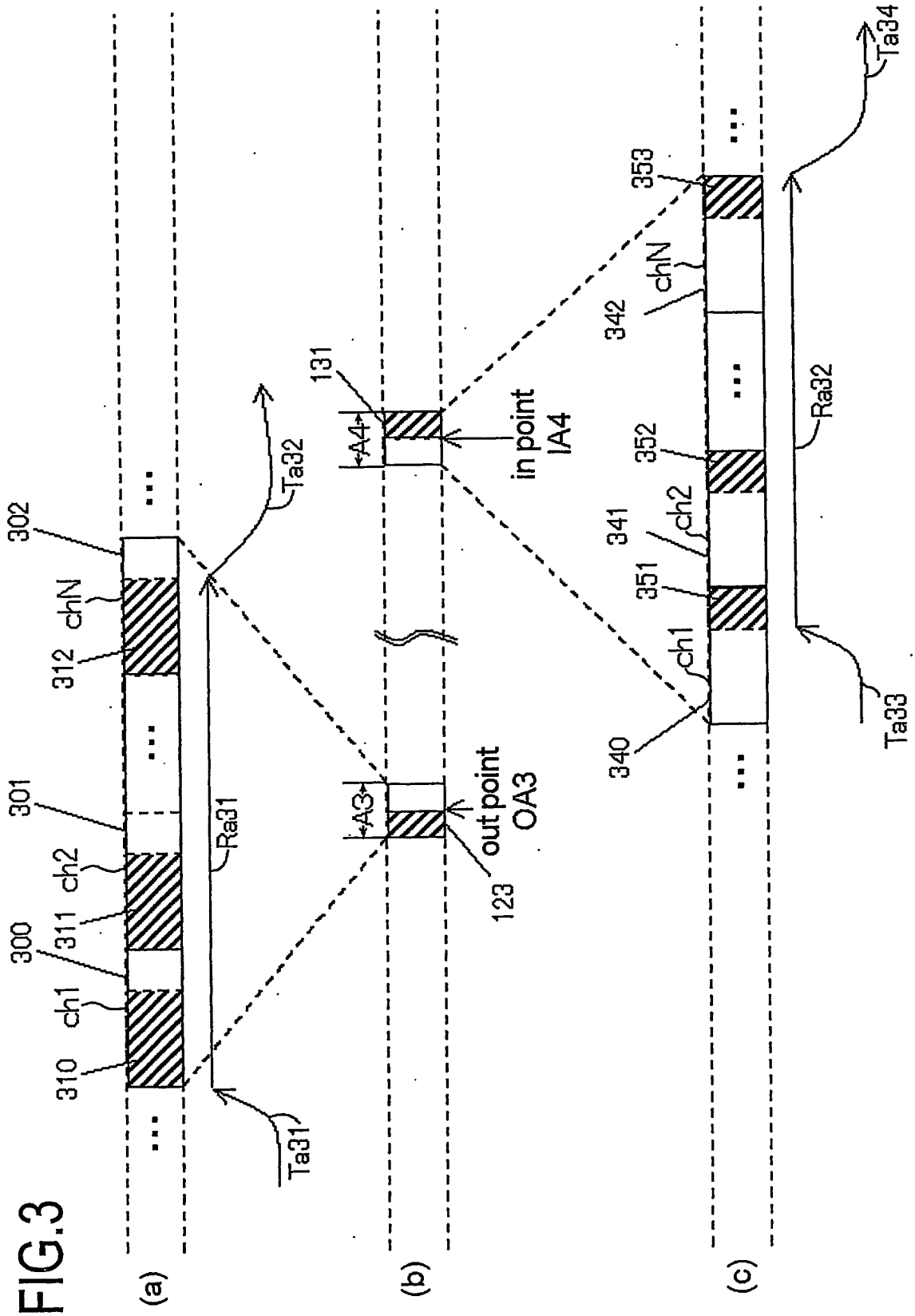
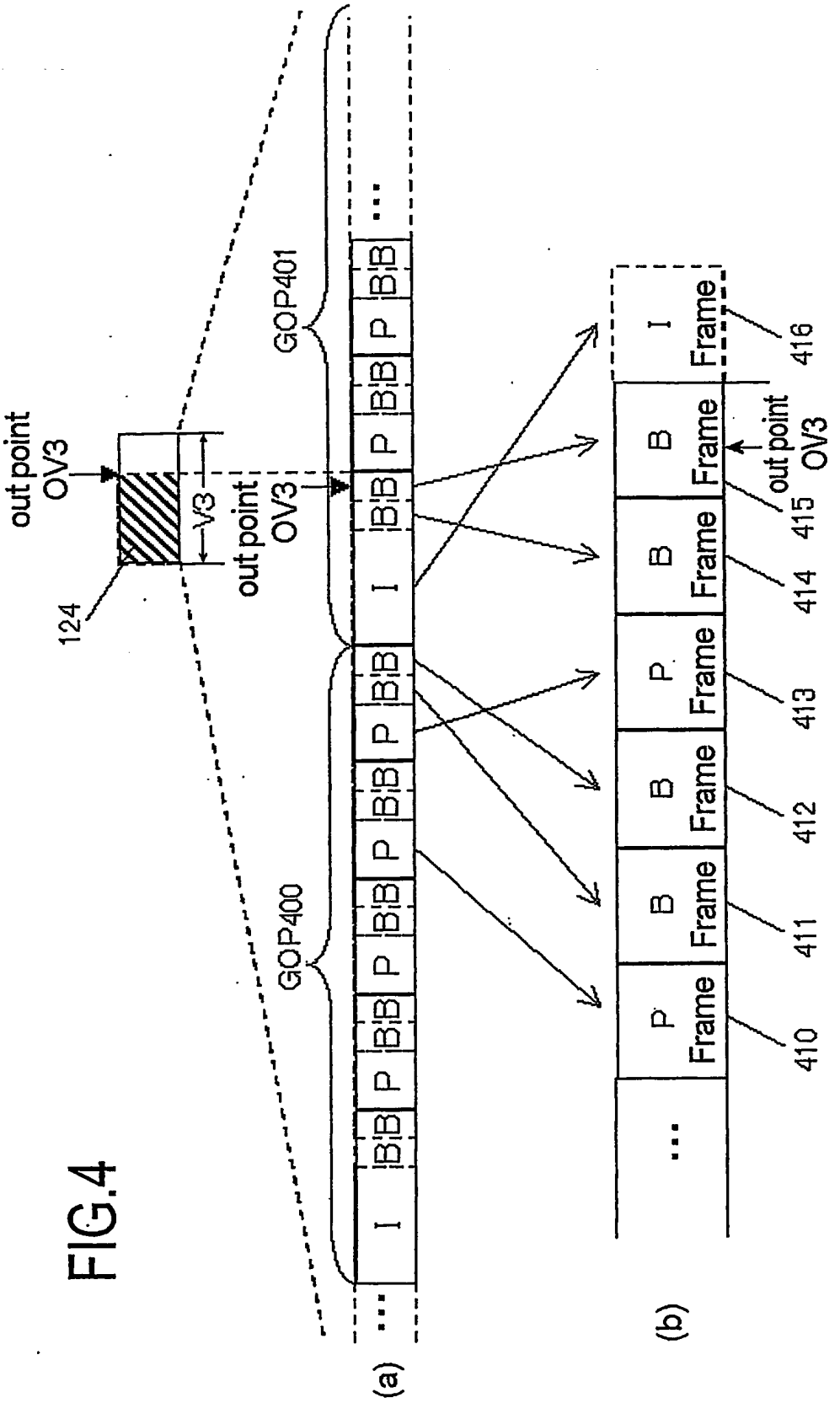

(a)
(b)
(c)
302
chN
312
301
ch2
311
300
ch1
310
Ra31
Ta31
Ta32
131
A4
in point
IA4
A3
out point
OA3
123
353
342
352
341
351
340
Ra32
Ta33
Ta34

FIG.4


out point
OV3
V3
124
out point
OV3
GOP401
GOP400
I
B
P
(a)
...
(b)
Frame
410
411
412
413
414
415
416
out point
OV3

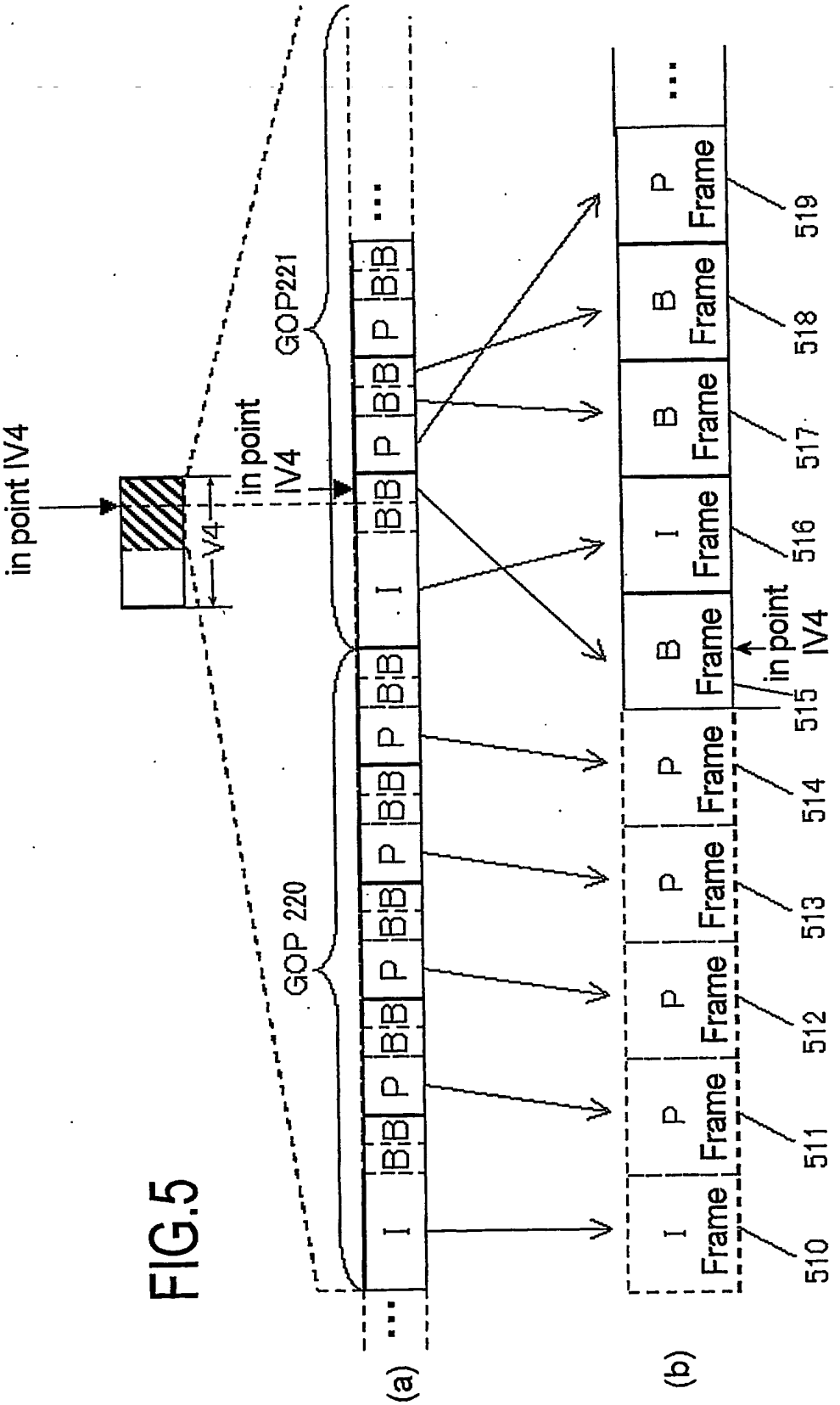

in point IV4
V4
in point IV4
GOP221
GOP 220
(a)
(b)
I Frame
P Frame
B Frame
510
511
512
513
514
515
516
517
518
519

FIG.5

FIG.6

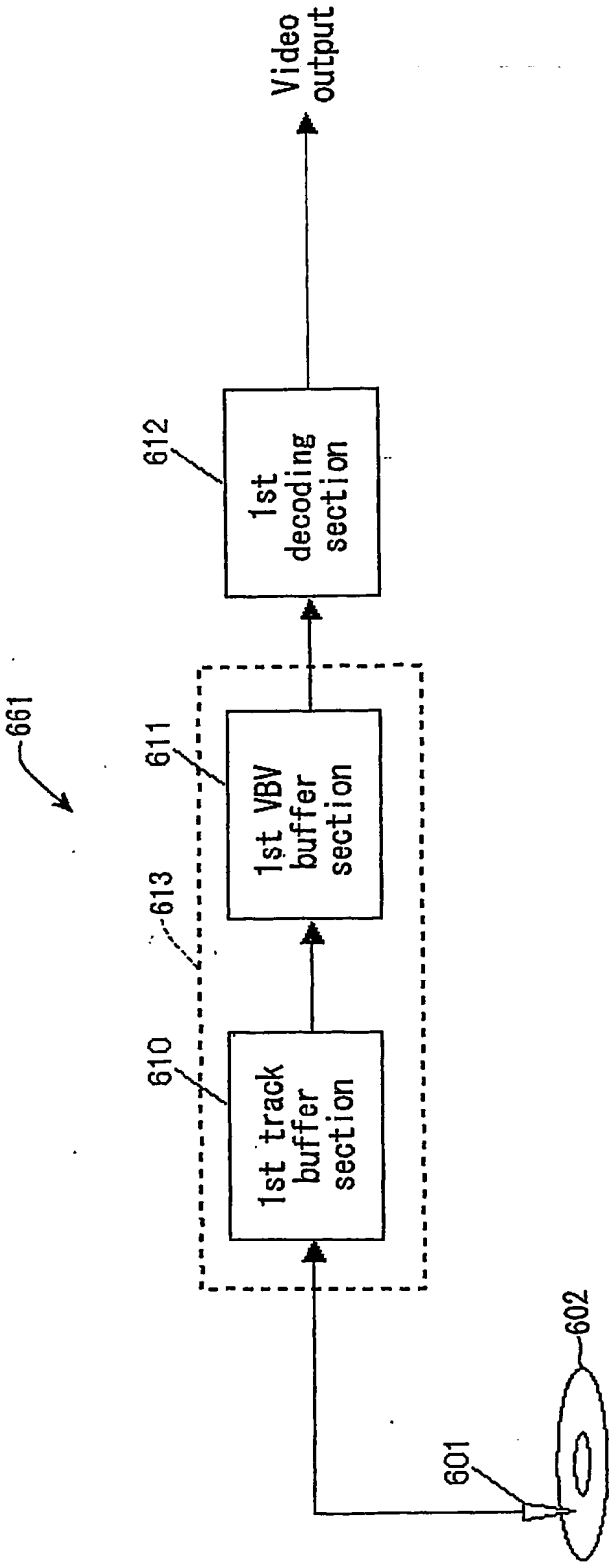

Video output
612
1st decoding section
661
611
1st VBV buffer section
613
610
1st track buffer section
602
601

FIG.7

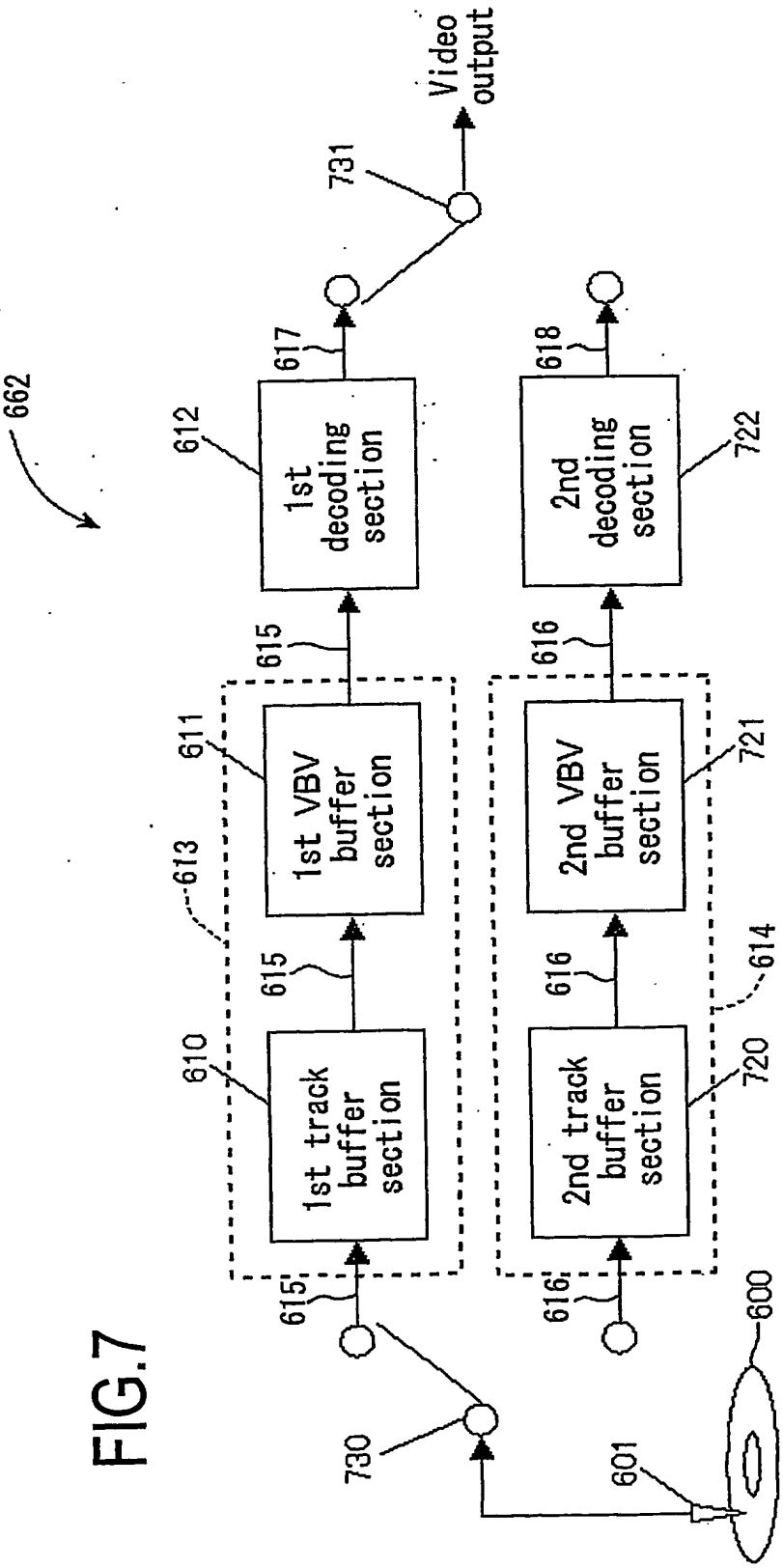

662
612
1st decoding section
617
731
Video output
722
2nd decoding section
618
615
611
1st VBV buffer section
613
615
610
1st track buffer section
616
721
2nd VBV buffer section
614
616
720
2nd track buffer section
615
616
730
601
600

FIG.8

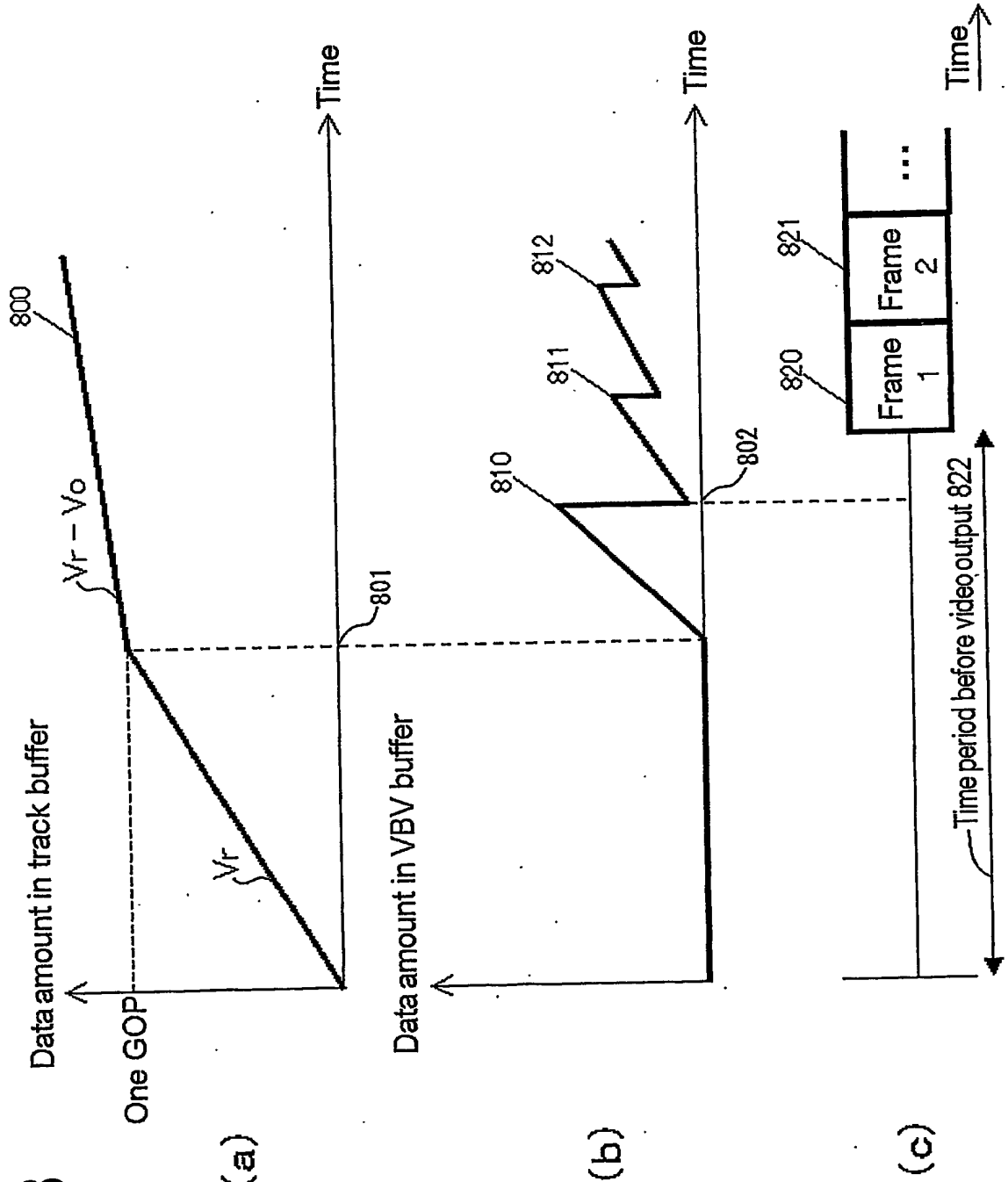
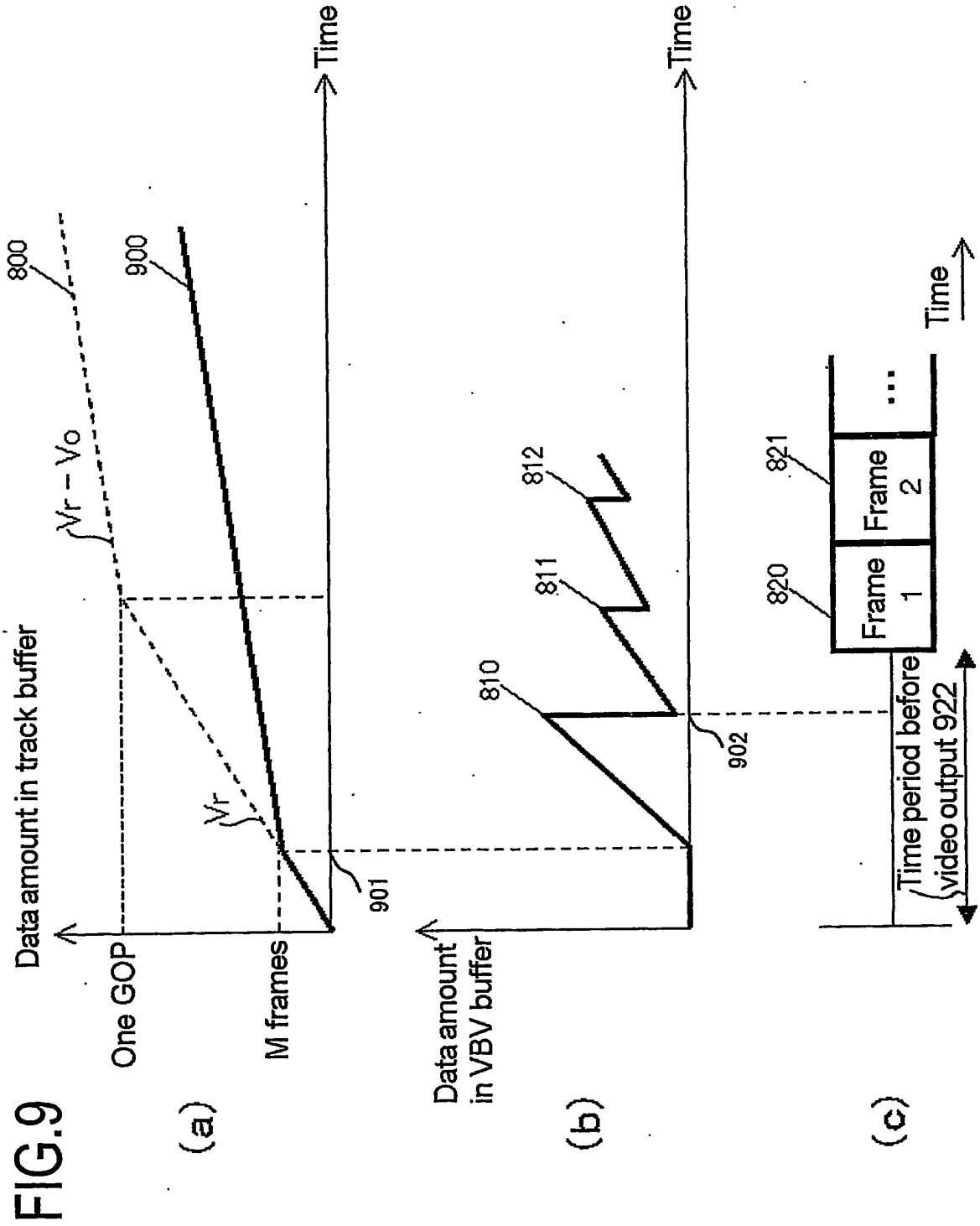

(a)
Data amount in track buffer
Time
800
Vr – Vo
Vr
801
One GOP
(b)
Data amount in VBV buffer
Time
810
811
812
802
(c)
Time
820
Frame 1
821
Frame 2
...
Time period before video output 822

FIG.9


(a)
Data amount in track buffer
Time
800
900
Vr − Vo
Vr
One GOP
M frames
901
(b)
Data amount in VBV buffer
Time
810
811
812
902
(c)
Time
820
821
Frame 1
Frame 2
...
Time period before video output 922

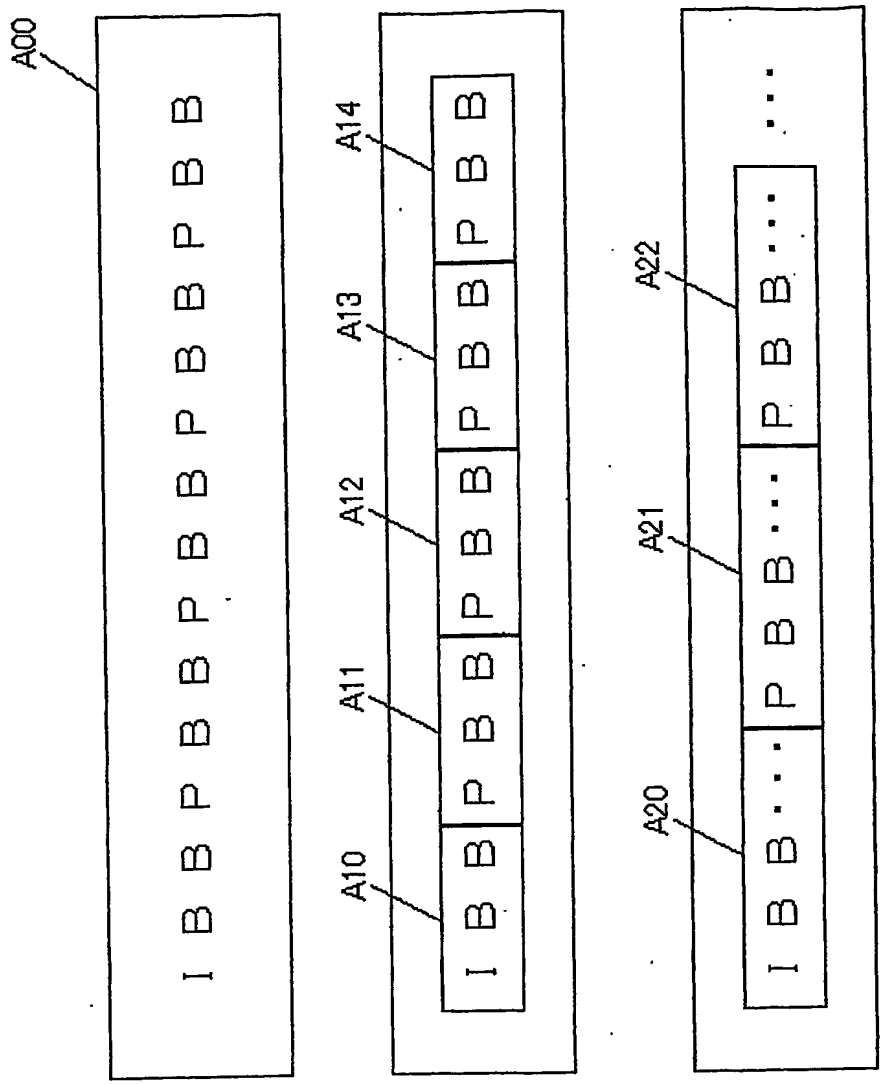

A00
I B B P B B B P B B B P B B B P B B
A10
I B B P B B
A11
P B B
A12
P B B
A13
P B B
A14
P B B
A20
I B B ・・・
A21
P B B ・・・
A22
P B B ・・・
・・・
(a)
(b)
(c)

FIG.10

FIG.11

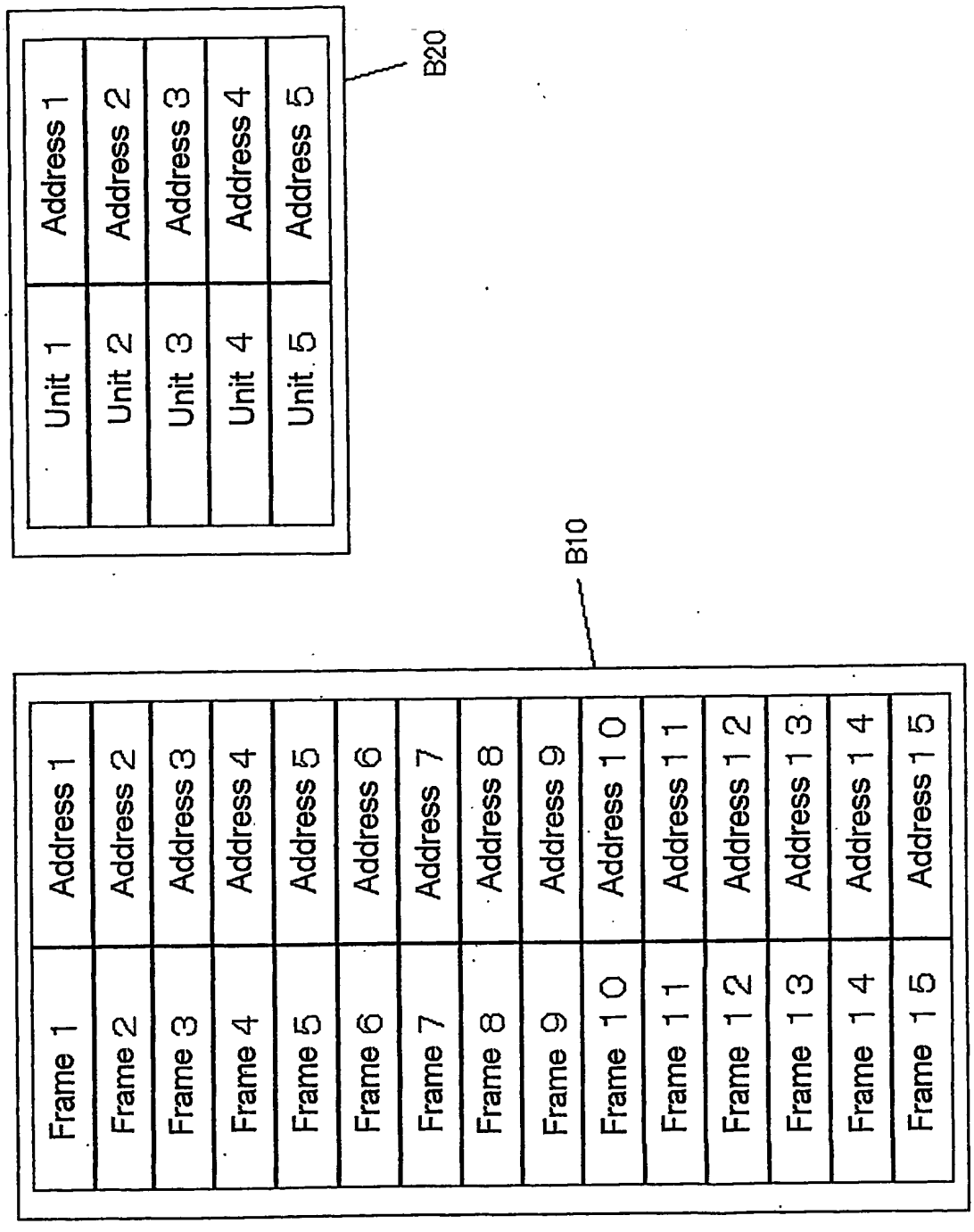

B20
Unit 1
Address 1
Unit 2
Address 2
Unit 3
Address 3
Unit 4
Address 4
Unit 5
Address 5
B10
Frame 1
Address 1
Frame 2
Address 2
Frame 3
Address 3
Frame 4
Address 4
Frame 5
Address 5
Frame 6
Address 6
Frame 7
Address 7
Frame 8
Address 8
Frame 9
Address 9
Frame 10
Address 10
Frame 11
Address 11
Frame 12
Address 12
Frame 13
Address 13
Frame 14
Address 14
Frame 15
Address 15

FIG.12

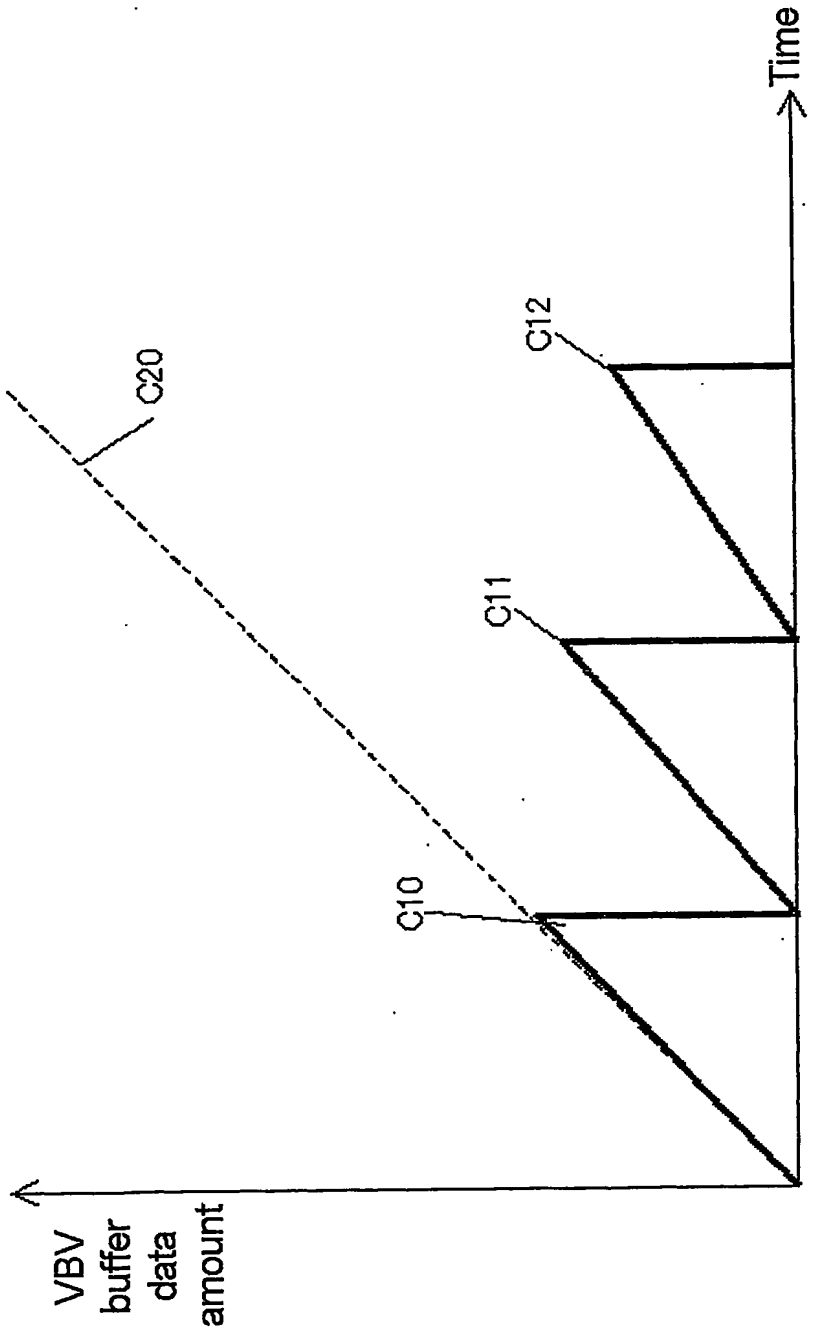


FIG.13

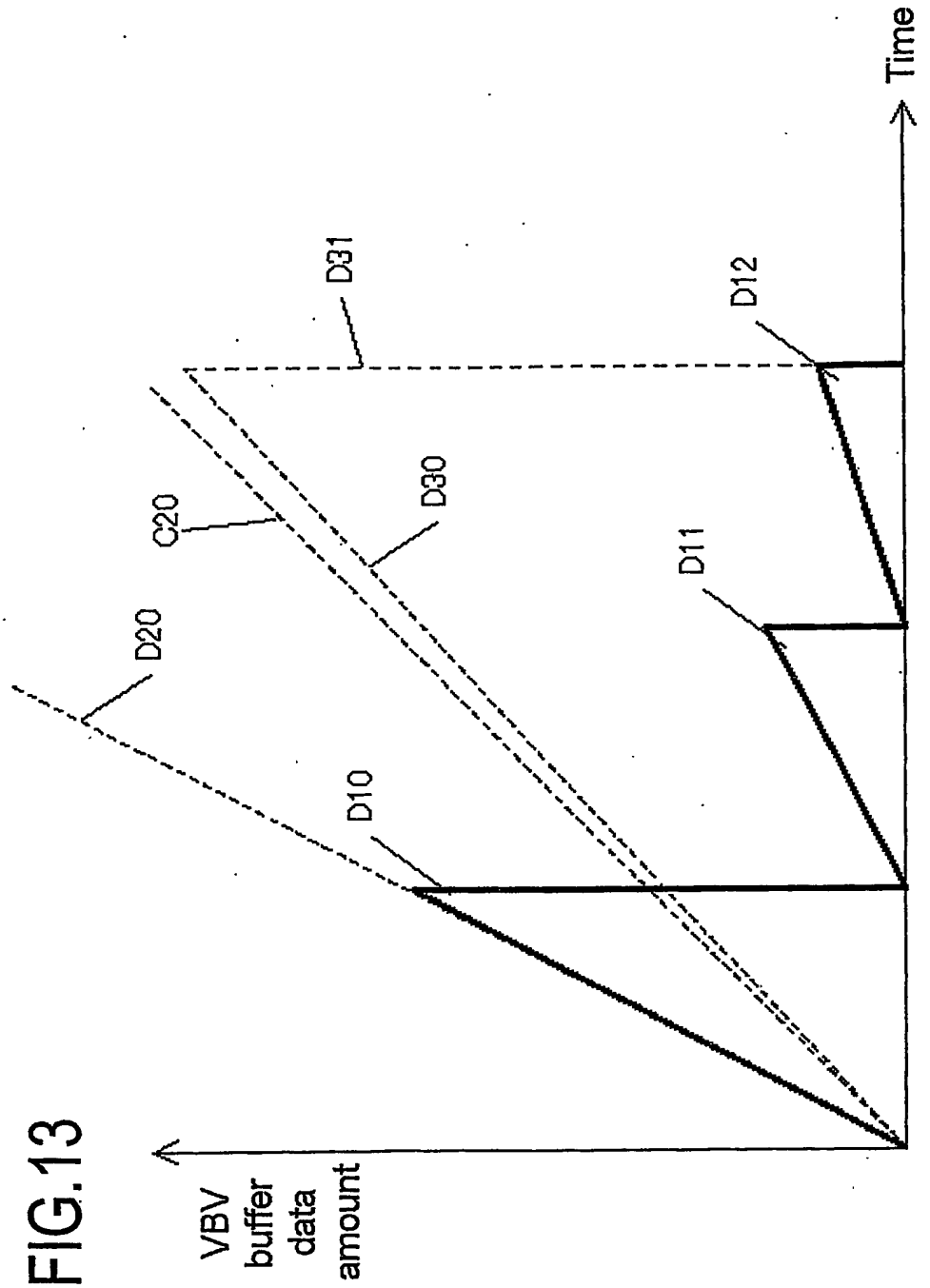
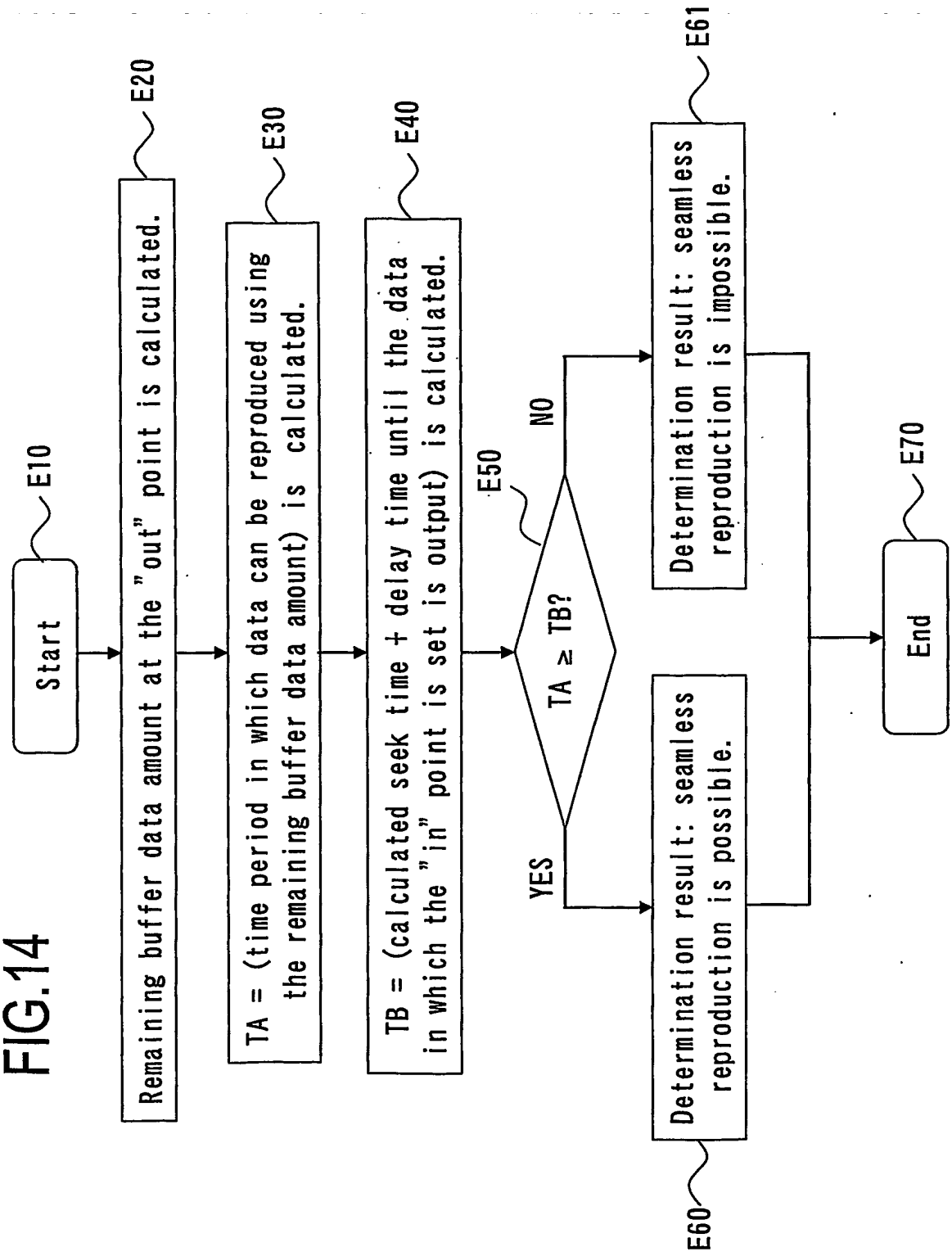


FIG.14


Start
E10
Remaining buffer data amount at the "out" point is calculated.
E20
TA = (time period in which data can be reproduced using the remaining buffer data amount) is calculated.
E30
TB = (calculated seek time + delay time until the data in which the "in" point is set is output) is calculated.
E40
TA ≥ TB?
E50
NO
YES
Determination result: seamless reproduction is impossible.
E61
Determination result: seamless reproduction is possible.
E60
End
E70

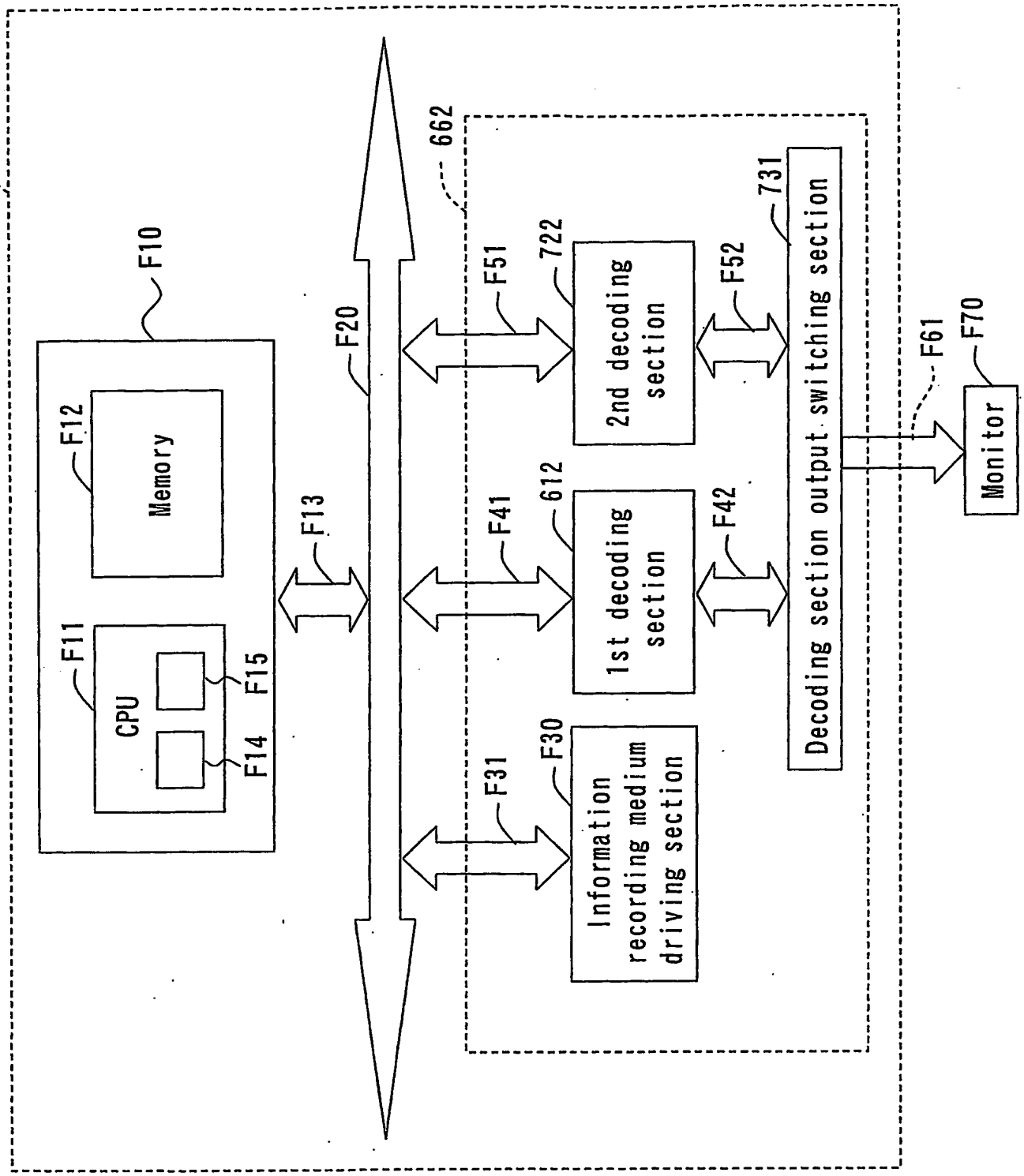

663
662
F10
F12
Memory
F11
CPU
F15
F14
F13
F20
F51
722
2nd decoding section
F52
731
F61
F70
Monitor
F41
612
1st decoding section
F42
F31
F30
Information recording medium driving section
Decoding section output switching section

FIG.15A

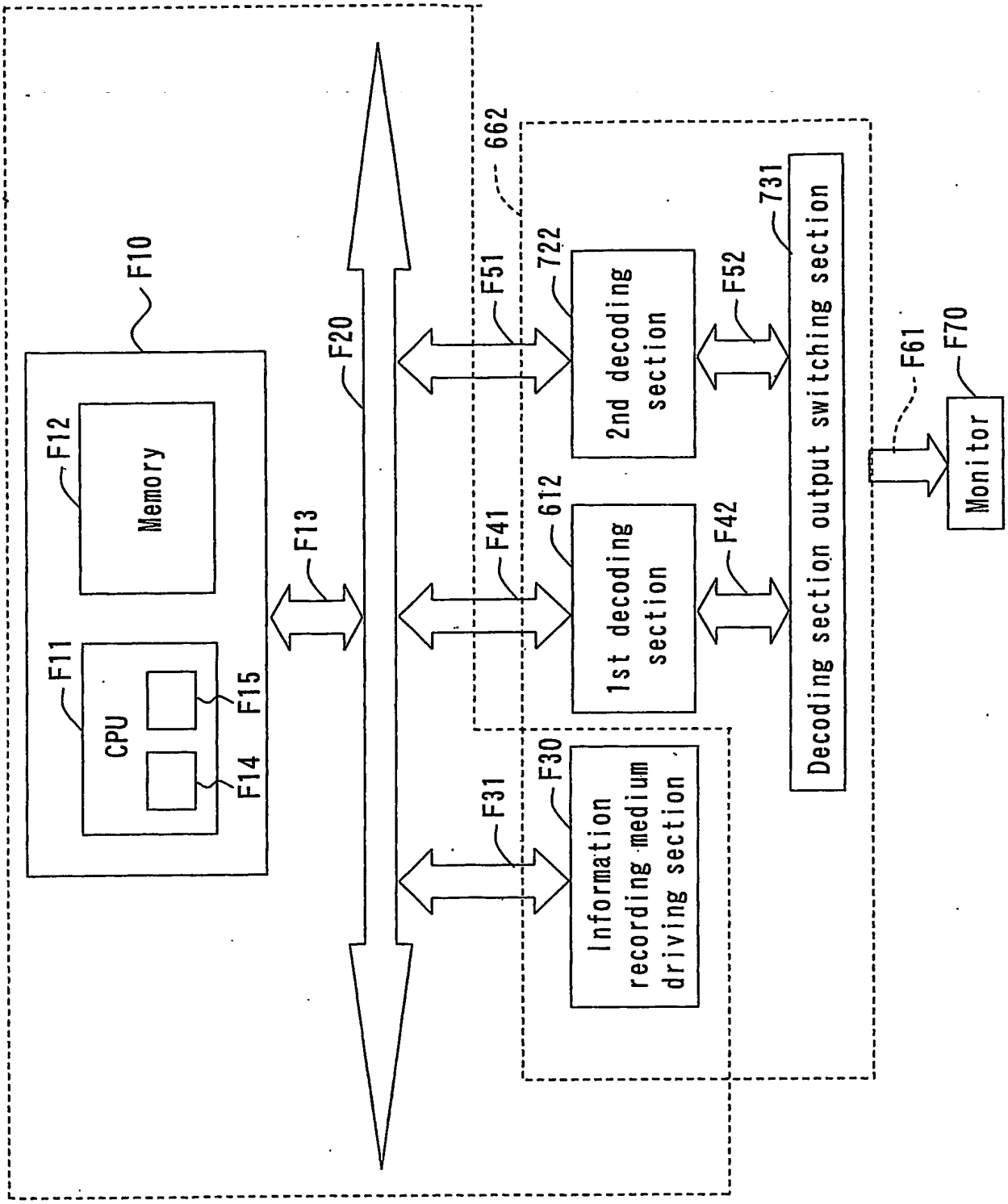

664
F10
F12
Memory
F11
CPU
F15
F14
F13
F20
662
F51
722
2nd decoding section
F52
731
Decoding section output switching section
F61
F70
Monitor
F41
612
1st decoding section
F42
F31
F30
Information recording medium driving section

FIG.15B

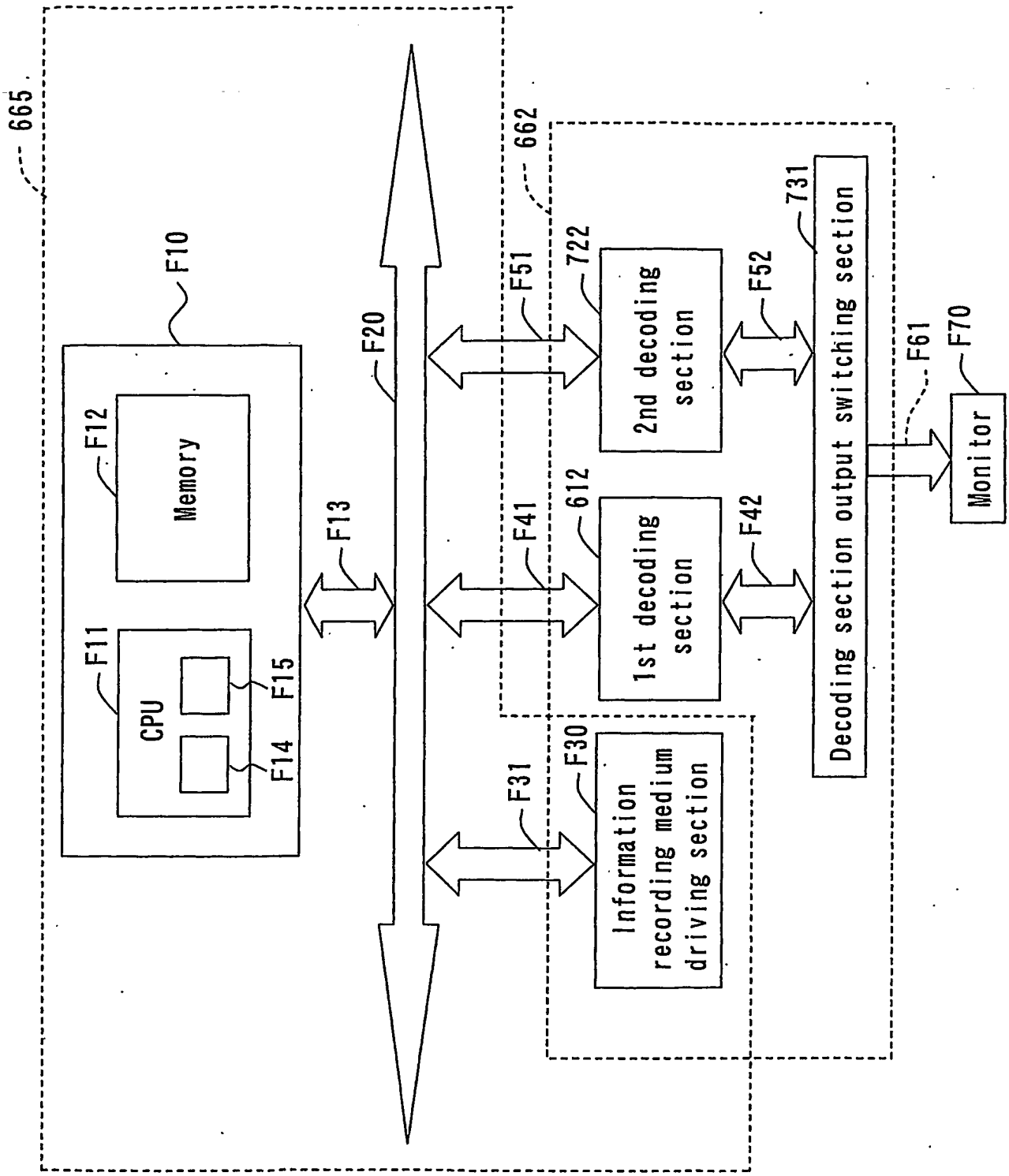

665
F10
F12
Memory
F11
CPU
F15
F14
F13
F20
662
F51
722
2nd decoding section
F52
731
F61
F70
Monitor
F41
612
1st decoding section
F42
Decoding section output switching section
F31
F30
Information recording medium driving section

FIG.15C

FIG.16

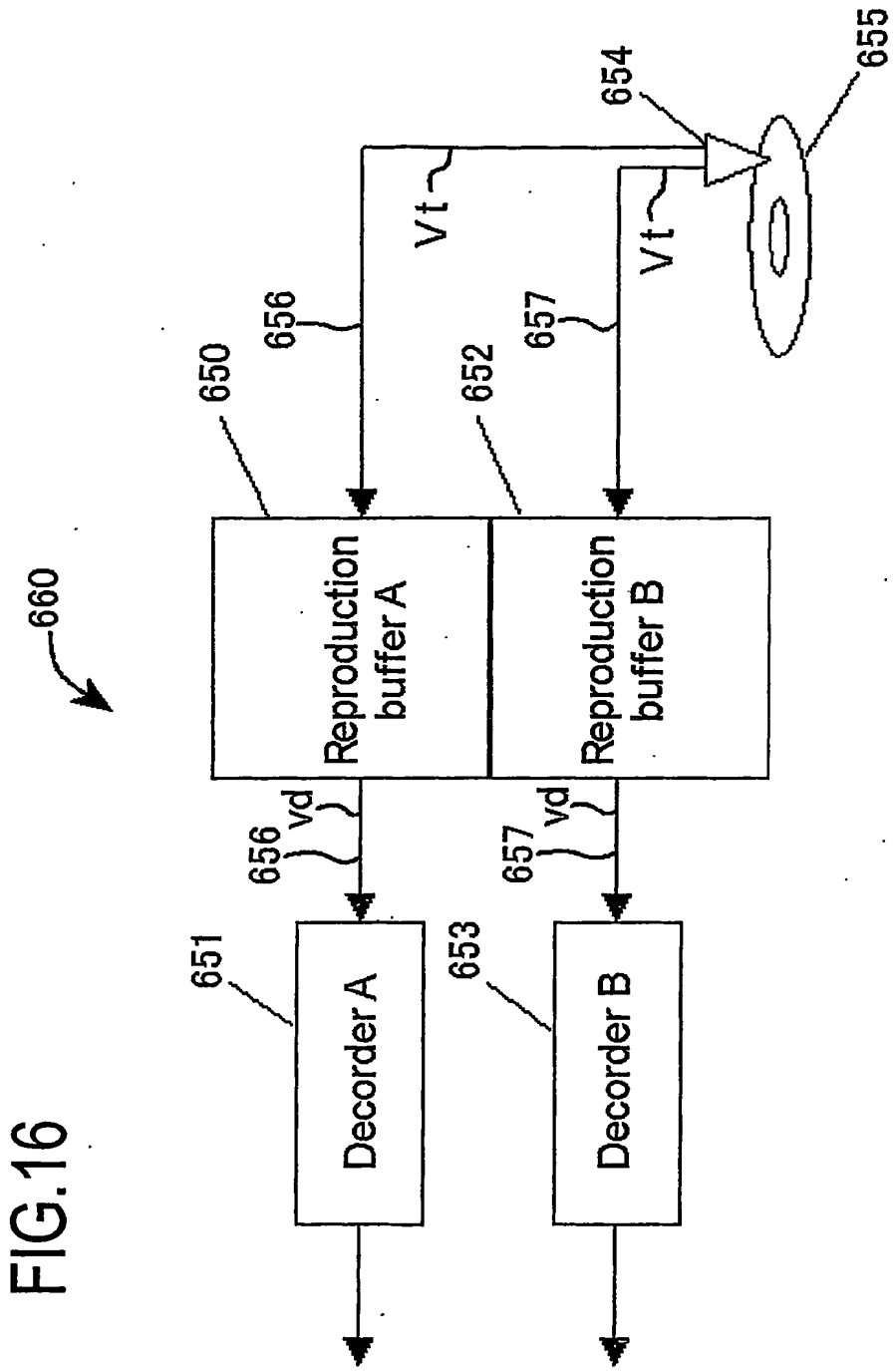

660
650
652
656
657
654
655
Vt
Vt
Reproduction buffer A
Reproduction buffer B
Vd
Vd
651
653
Decorder A
Decorder B

FIG.17

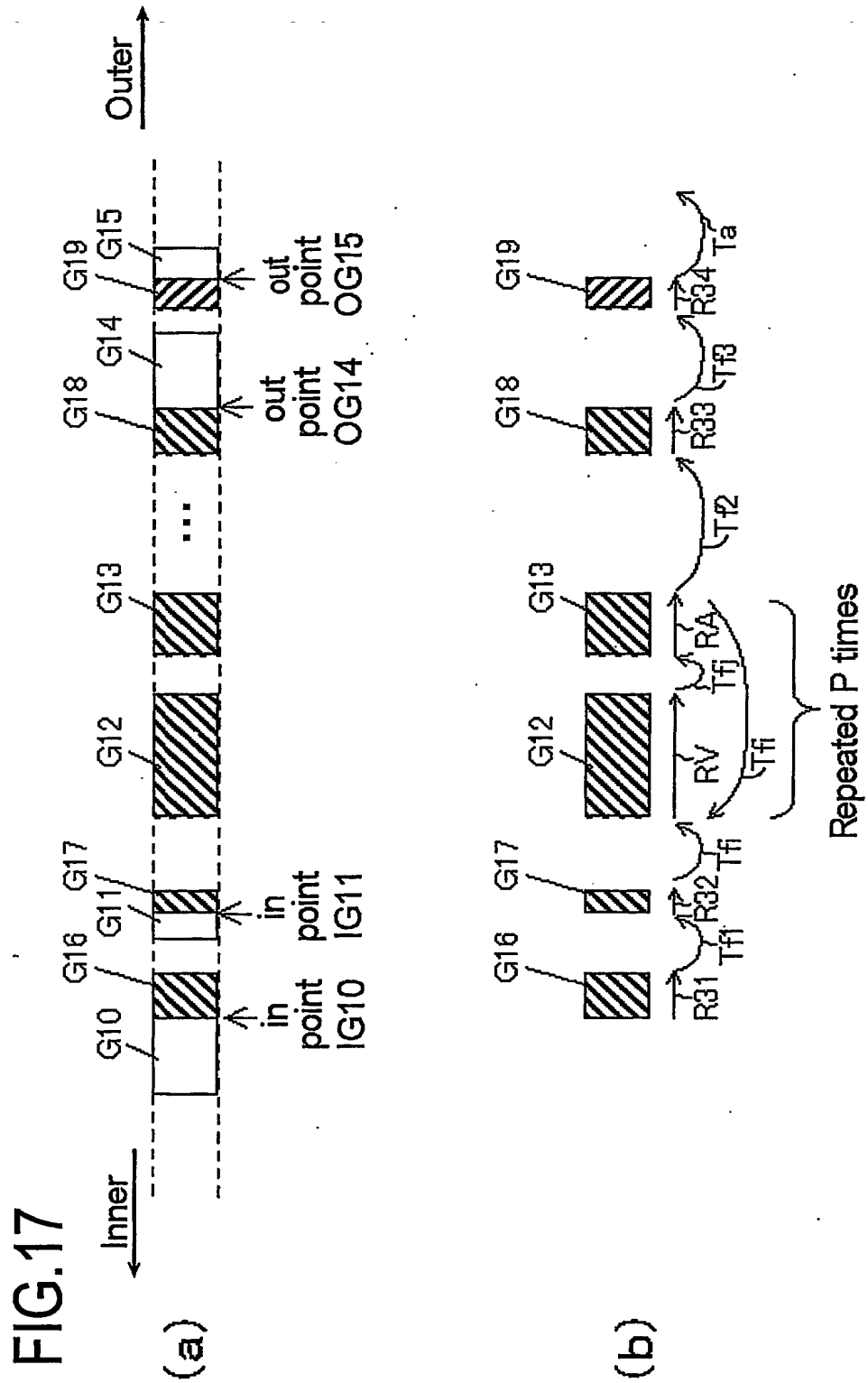

(a)
Inner
Outer
G10
G16
G11
G17
G12
G13
G18
G14
G19
G15
in point IG10
in point IG11
out point OG14
out point OG15
(b)
G16
G17
G12
G13
G18
G19
R31
Tfi
R32
Tfi
RV
Tfi
Tfj
RA
Tf2
R33
Tf3
R34
Ta
Repeated P times

FIG.18

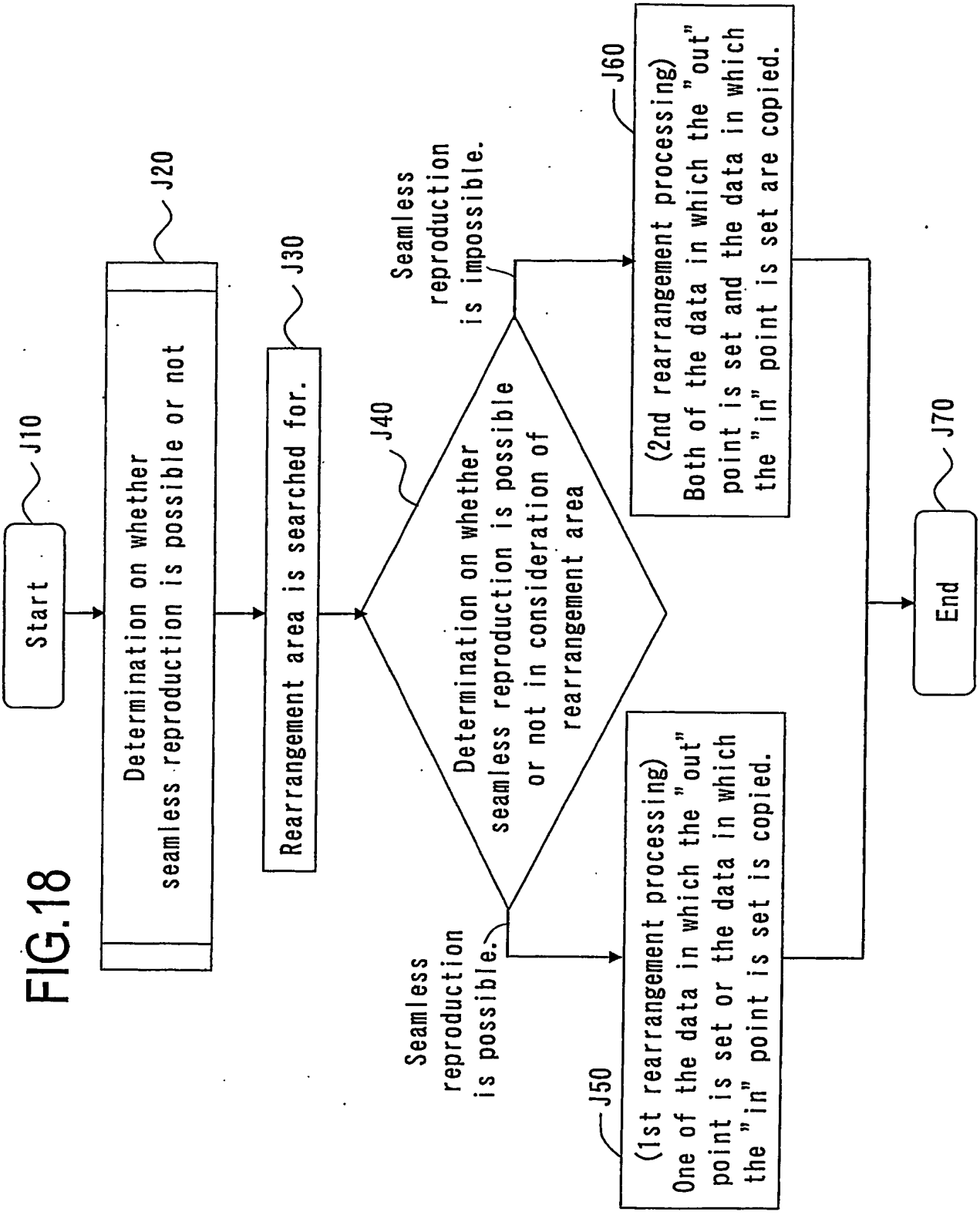
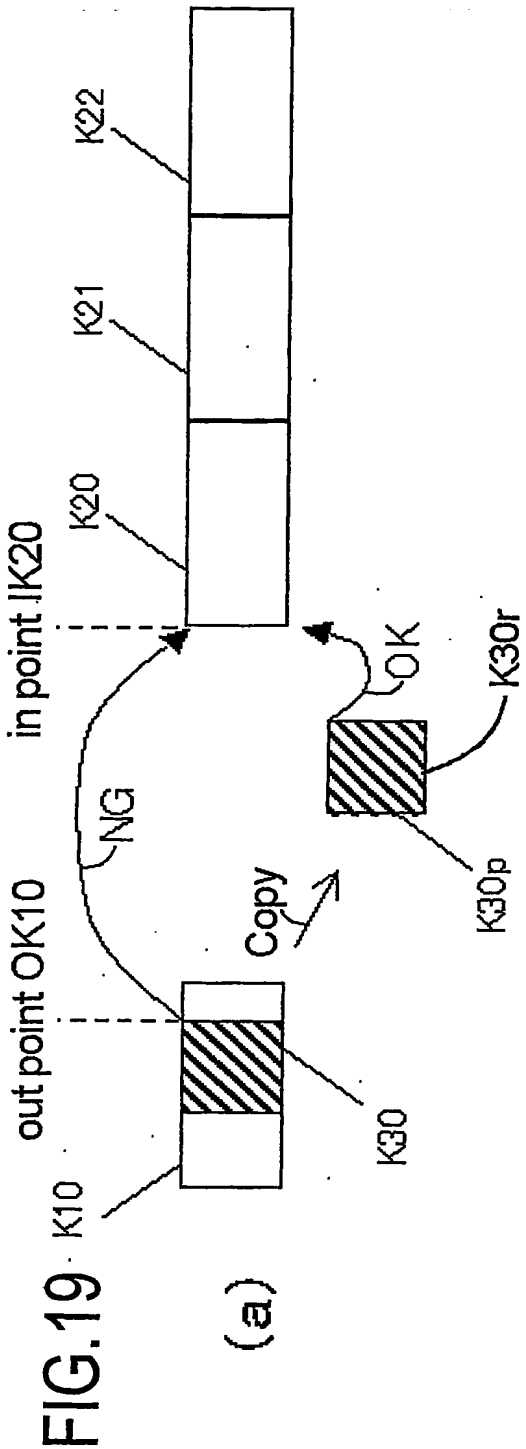

Start
J10
Determination on whether seamless reproduction is possible or not
J20
Rearrangement area is searched for.
J30
Determination on whether seamless reproduction is possible or not in consideration of rearrangement area
J40
Seamless reproduction is impossible.
Seamless reproduction is possible.
(2nd rearrangement processing) Both of the data in which the "out" point is set and the data in which the "in" point is set are copied.
J60
(1st rearrangement processing) One of the data in which the "out" point is set or the data in which the "in" point is set is copied.
J50
End
J70

FIG.19


K22
K21
K20
in point IK20
out point OK10
NG
OK
K30r
K30p
Copy
K30
K10
(a)

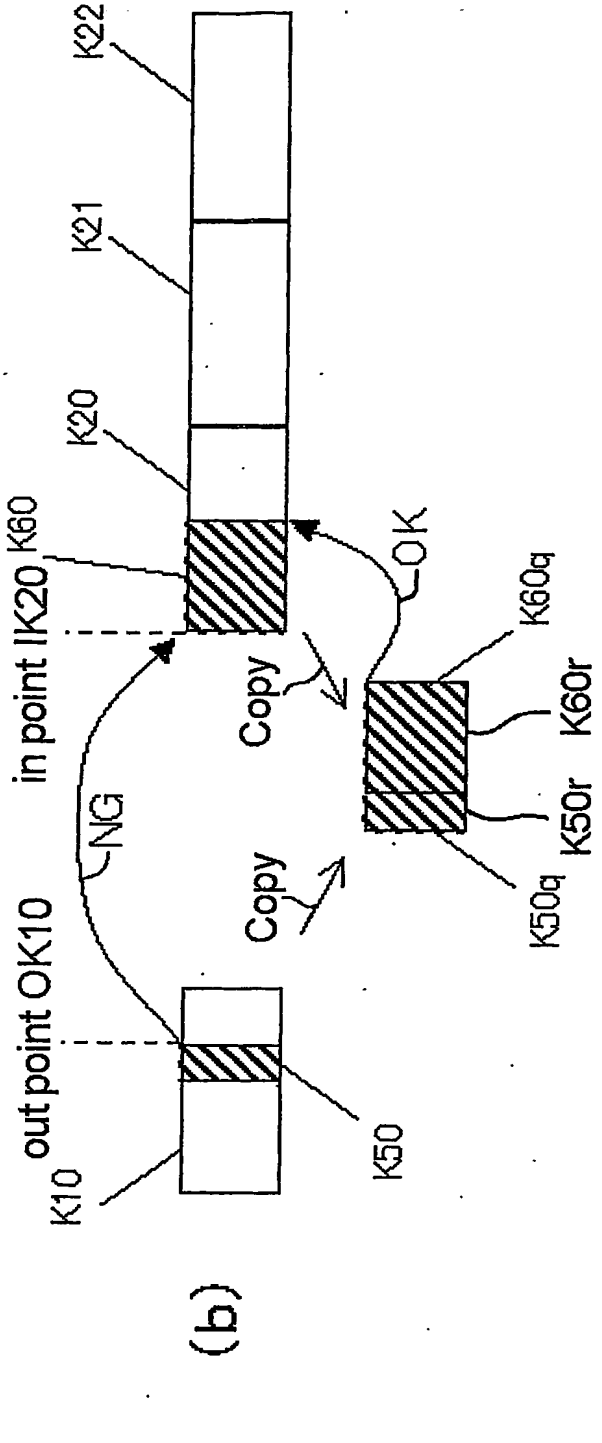

K22
K21
K20
K60
in point IK20
out point OK10
NG
OK
K60q
K60r
K50r
K50q
Copy
Copy
K50
K10
(b)

FIG.20

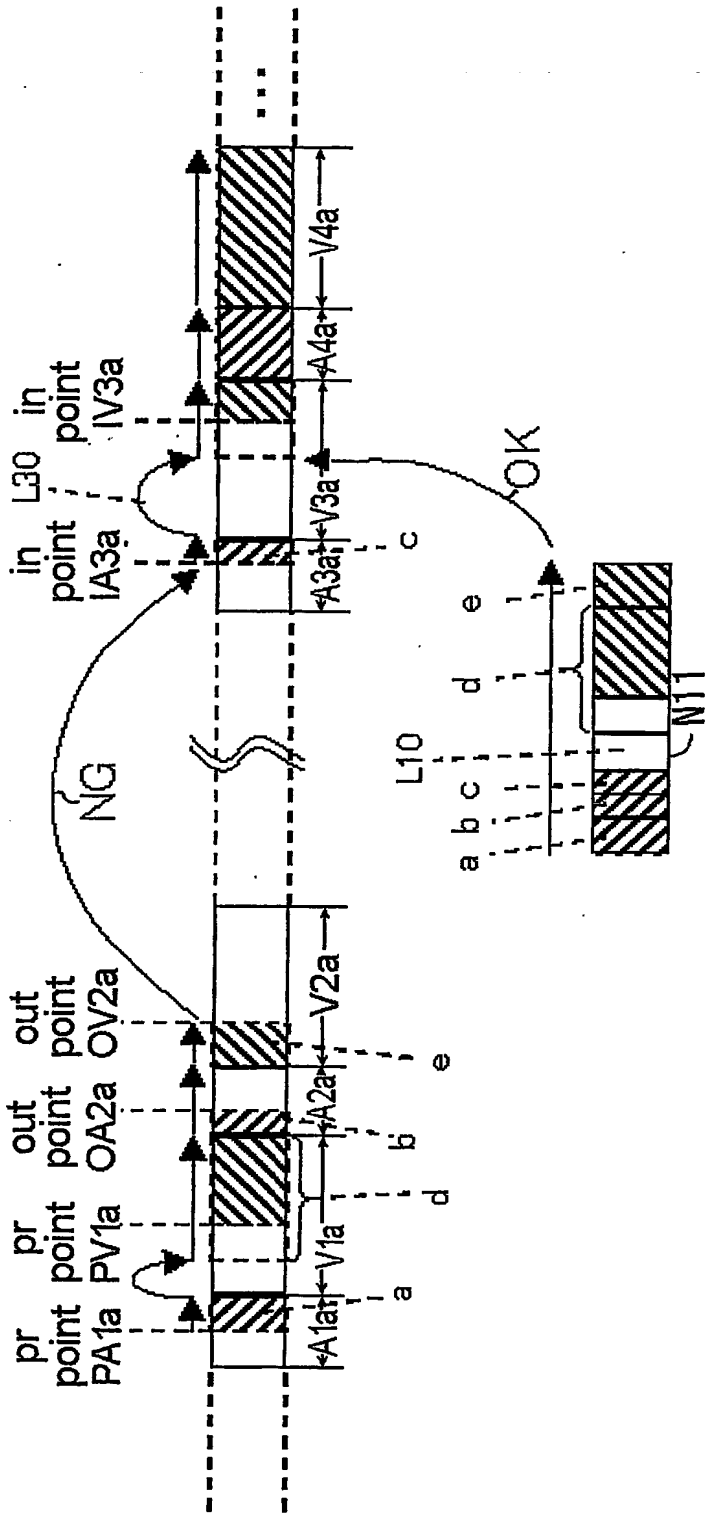

pr point PA1a
pr point PV1a
out point OA2a
out point OV2a
in point IA3a
in point IV3a
L30
L10
NG
OK
N11
V1a
V2a
V3a
V4a
A1a
A2a
A3a
A4a
a
b
c
d
e

FIG.21

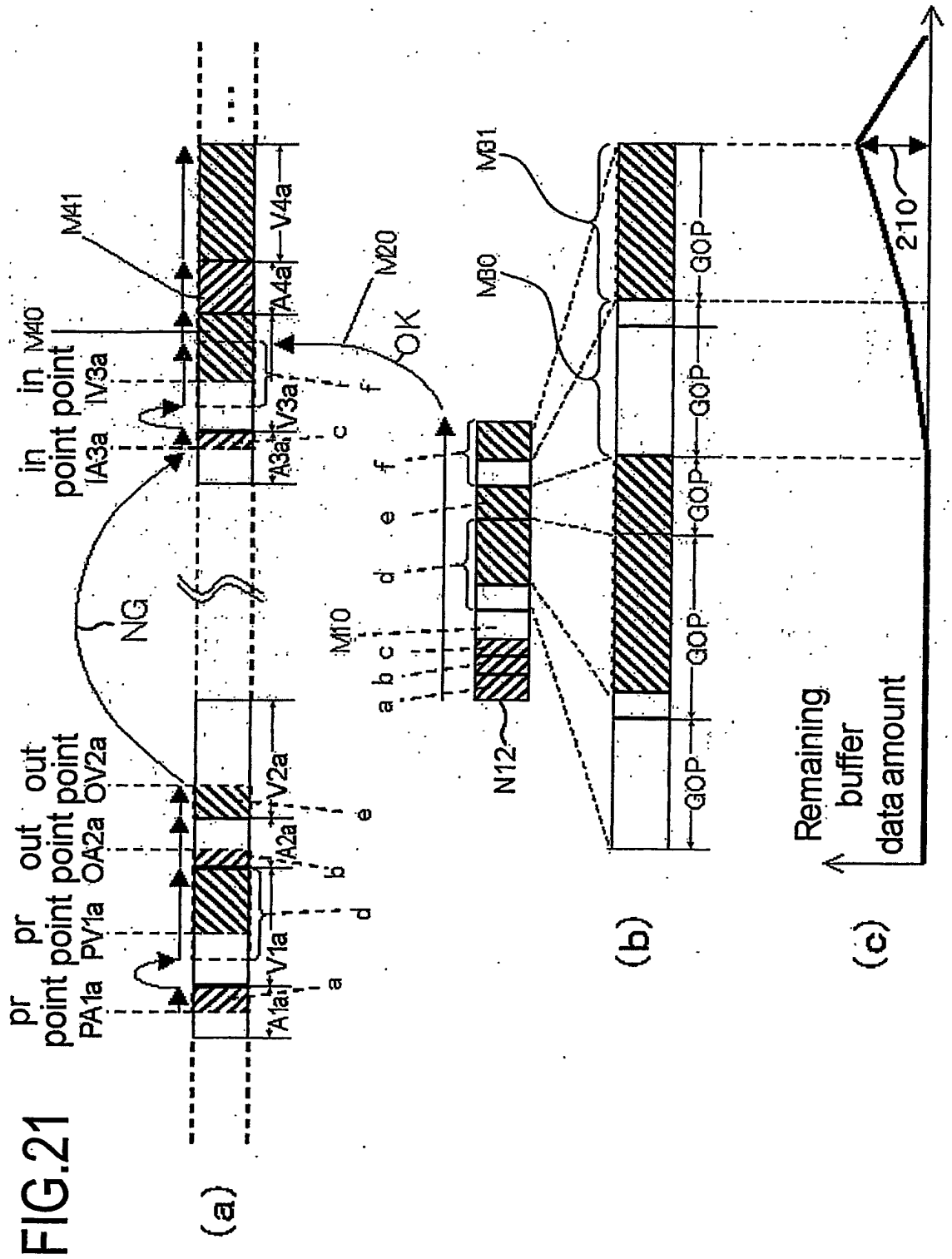
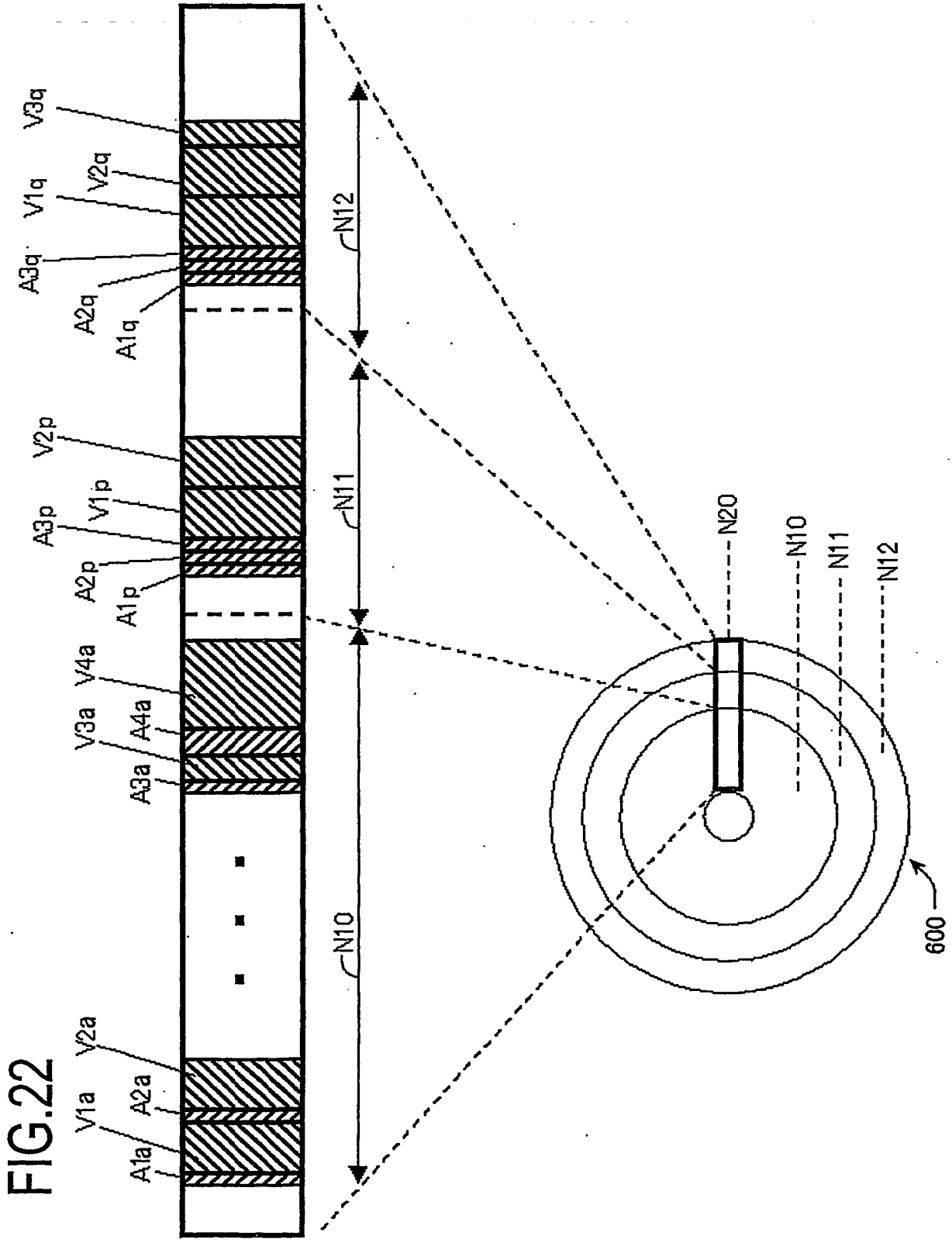

(a)
(b)
(c)
pr point PA1a
pr point PV1a
out point OA2a
out point OV2a
in point IA3a
in point IV3a
M41
M40
M20
M10
M31
M30
N12
V1a
A1a
V2a
A2a
V3a
A3a
V4a
A4a
NG
OK
a b c d e f
GOP
Remaining buffer data amount
210

FIG.22


V3q
V2q
V1q
A3q
A2q
A1q
N12
V2p
V1p
A3p
A2p
A1p
N11
V4a
V3a
A4a
A3a
V2a
V1a
A2a
A1a
N10
N20
N10
N11
N12
600